UNIVERSITY COLLEGE of the FRASER VALLEY

COURSE IMPLEMENTATION DATE: [January 2001]
COURSE REVISED IMPLEMENTATION DATE: [September 2003]
COURSE TO BE REVIEWED DATE: [September 2007]
(Four years after implementation date)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and material will vary
- see course syllabus available from instructor

FACULTY/DEPARTMENT : **CHEMISTRY**

CHEM 224		**4**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

ATOMS, MOLECULES, SPECTRA

COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

An introduction to quantum mechanics and its applications to chemistry and spectroscopy. This course covers basic concepts of quantum mechanics and its applications to atomic and molecular systems. A computer lab illustrates lecture material.

PREREQUISITES: One of CHEM 113, or CHEM 111, or CHEM 101 (with B or better); and one of: CHEM 114, or CHEM 112, or CHEM 102 (with B or better); plus either PHYS 111/112 or PHYS 105, and MATH 111/112. (Math 211 is recommended.)
NOTE: After April 2005 CHEM 101, 102, 111, 112 will no longer meet prerequisites for this course.

COREQUISITES: None

SYNONYMOUS COURSE(S)
(a) Replaces: N/A
(Course #)
(b) Cannot take N/A for further credit
(Course #)

SERVICE COURSE TO:
(Department / Program)
(Department / Program)

TOTAL HOURS PER TERM: **90**

STRUCTURE OF HOURS:

Lectures:	45	hrs
Seminar:		hrs
Laboratory:	45	hrs
Field Experience:		hrs
Student Directed Learning:		hrs
Other (Specify):		hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE:
HOURS PER DAY:

MAXIMUM ENROLMENT: 24

EXPECTED FREQUENCY OF COURSE OFFERING:

WILL TRANSFER CREDIT BE REQUESTED? **YES** X **NO**

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: **YES** **NO** X

AUTHORIZATION SIGNATURES:

Course designer(s): N. Weinberg
Chairperson: *(Curriculum Committee)*
Department Head: N. Weinberg
Dean: J. Snodgrass
PAC Approval in Principle Date:
PAC Final Approval Date: December 4, 2002

LEARNING OBJECTIVES / GOALS / OUTCOMES/ LEARNING OUTCOMES:

Students will become familiar with the basic concepts of quantum mechanics and its applications to atomic and molecular systems. They will learn how to use principles of quantum mechanics and quantum mechanical programs to calculate properties of molecules and their spectra.

METHODS:

Lectures, computer labs, group problem-solving sessions.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR YES _____ NO ___X__

METHODS OF OBTAINING PLAR:

TEXTBOOKS, REFERENCES, MATERIALS:

Atkins, *Physical Chemistry*, 6th ed., Freeman and Co., 1998

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

Labs	25%
Midterms	30%
Final	45%

COURSE CONTENT:

1. Introduction to Quantum Mechanics.
2. Simple Quantum Mechanical Problems and their Application to Spectroscopy.
3. Atomic Structure and Spectroscopy.
4. Molecular Structure.
5. Molecular Electron Spectroscopy.